What is a CBEFF and why do I care?

Fingerprint Standard Update Workshop

CBEFF

Common Biometric Exchange Formats Framework

Workshop – Feb 1999

Jan 2001

NISTIR 6529

Apr 2004

NISTIR 6529-A

Feb 2005

ANSI INCITS 398-2005

Aug 2005 ?

ISO/IEC 19785-1

CBEFF Purpose

➢ *CBEFF describes a set of data elements necessary to support biometric technologies in a common way.*

➢ *Features*

  o Facilitates biometric data interchange between different system components or systems
  o Promotes interoperability of biometric-based application programs and systems
  o Provides forward compatibility for technology improvements
  o Simplifies the software and hardware integration process

CBEFF in a Nutshell

Standard Biometric Header
Digital Signature

- ➤ **Defines <u>Basic Fields</u> used by Biometric Data**
  - – Security
  - – Useful Biometric Processing Info
  - – Biometric Data
- ➤ **Doesn't constrain the encoding of data**
- ➤ **Registration of Biometric Data via IBIA**
- ➤ **Allows for new adaptations**
- ➤ **CBEFF compliance can be met by "Patrons and Clients" model**

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CBEFF Data Structure

HEADER (SBH)	BIOMETRIC DATA BLOCK (BDB)	SIGNATURE (SB)*

* Optional

Required header field

Format Owner Format Type

IBIA
International Biometric Industry Association

Identifies the specific, detailed format of the succeeding biometric data:

- May be standard or proprietary
- Published or unpublished
- Raw, intermediate, or processed
- For enrollment, verification, or identification
- One or more samples
- One or more biometric types
- Clear/encrypted, signed/unsigned

Receiving component (application or technology) reads Format ID and determines:

- Ability to interpret/process
- Decision as to where to route the data

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Format Owners

➢ INCITS M1: 0x001B

➢ ISO/IEC SC37:   0x0101

➢ NIST: 0x000F

M1 Format Types

Format Type	Format	Standard
0x0201	Minutiae (basic)	INCITS 378
0x0202	Minutiae (with extension)	INCITS 378
0x0301	Finger pattern (basic)	INCITS 377
0x0302	Finger pattern (extended)	INCITS 377
0x0401	Finger image	INCITS 381
0x0501	Face image	INCITS 385
0x0601	Iris (basic)	INCITS 379
0x0602	Iris (with extension)	INCITS 379
0x0701-6	Signature (various)	INCITS 395*
0x0801-2	Hand Geometry (basic/ext)	INCITS 396*

* Not yet approved

Patron/Client Model

CBEFF Patron: An organization that has defined a standard or specification incorporating biometric data object that meets CBEFF requirements.
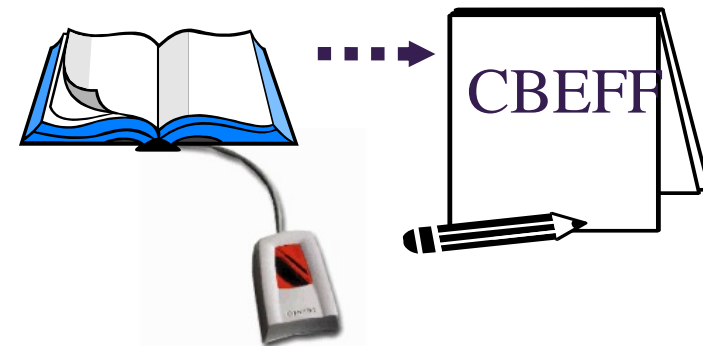
Example Patrons:

- BioAPI
- ISO 7816-11
- SC37 (19784-3)

CBEFF Client: An entity that defines a specific biometric data structure (e.g., a BDB format owner) that meets CBEFF requirements. This would include any vendor, standards committee, working group, or industry consortium that has registered itself with IBIA and has defined one or more BDB format types.
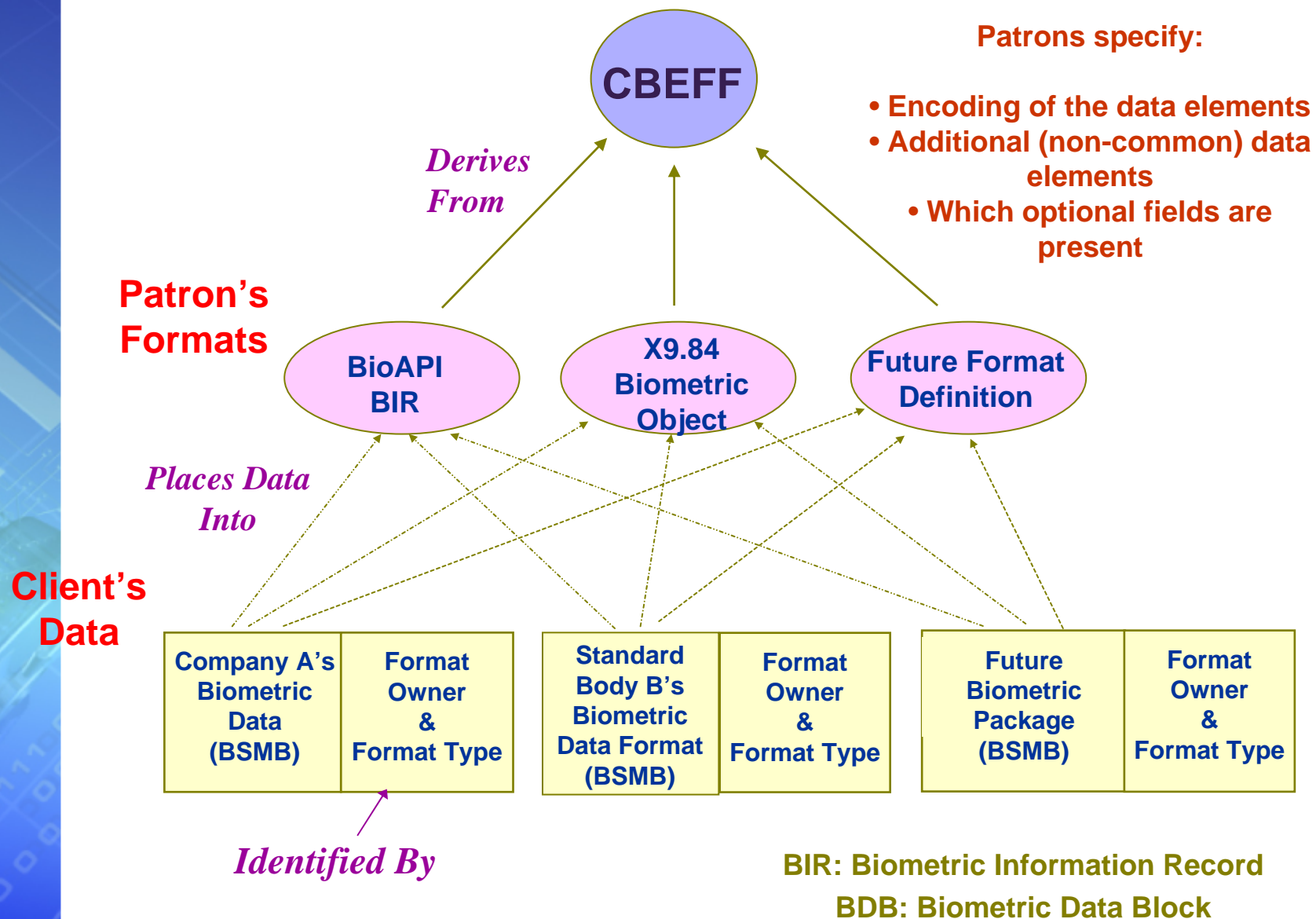
Example Clients:

- INCITS M1 (e.g. 381)
- BioScrypt
- Iridian
- Identix

Patron/Client Relationships

CBEFF

Derives From

Patrons specify:

- **Encoding of the data elements**
- **Additional (non-common) data elements**
- **Which optional fields are present**

Patron's Formats

BioAPI BIR

X9.84 Biometric Object

Future Format Definition

Places Data Into

Client's Data

Company A's Biometric Data (BSMB)	Format Owner & Format Type
Standard Body B's Biometric Data Format (BSMB)	Format Owner & Format Type
Future Biometric Package (BSMB)	Format Owner & Format Type

Identified By

BIR: Biometric Information Record

BDB: Biometric Data Block

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Header Data Elements

➢ **Mandatory**

- – SBH Security Options
- – Format Owner
- – Format Type

Patrons can make optional elements mandatory.

➢ **Optional**

- – Integrity options*
- – CBEFF header version
- – Patron header version
- – Biometric type
- – Biometric subtype
- – Biometric data type
- – Biometric purpose
- – Biometric data quality
- – Biometric creation date
- – Validity period
- – Creator
- – Index
- – Challenge/response
- – Payload
- – Subheader count
- – Product ID
- – Patron format ID

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$64,000 Questions

Which patron format to use, when?

- ➢ Generally, application dependent
  - Can be specified in a profile
  - Example: Draft SP 800-76
- ➢ INCITS data format standards require that the defined record be incorporated within a CBEFF data structure
- ➢ SC37 joint ad hoc recommended that an informative guidance document be developed

How can the ANSI/NIST format be used in conjunction with a CBEFF structure?

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Can't we all just get along?

➢ Can/should it become a patron? … a format owner?

  – Patron would define it's own header

  – Format owner would define it's own BDB

➢ Can/should there be a BDB for each record type?

➢ Discussion during the workshop may come back to some of these questions.

The End

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